

Amendments to the Claims

1. (canceled)

2. (previously presented): Apparatus for fiber length measurements from a tapered beard attached to a fiber sampler, comprising:

a rectangular channel into which a tapered beard is drawn by a gas flow through said channel, said channel having two opposed major sides corresponding to channel width and length, and two opposed minor sides corresponding to channel height and length;

one of said major sides comprising a transparent window;

an optical imaging device viewing the tapered beard through said transparent window for acquiring a two-dimensional image of the tapered beard; and

a digital computer connected to an output of said optical imaging device for storing two-dimensional image data and determining fiber amount as a function of one-dimensional distance  $x$  from the fiber sampler by averaging across the width of the tapered beard as imaged.

3. (previously presented): The apparatus of claim 2, wherein said optical imaging device comprises a scanner intended for scanning documents.

4. (original): The apparatus of claim 3, wherein said scanner is a color scanner.

5. (original): The apparatus of claim 3, wherein said scanner includes an illumination source.

6. (previously presented): The apparatus of claim 2, wherein said optical imaging device comprises a digital camera.

7. (previously presented): The apparatus of claim 2, wherein said rectangular channel has a height of approximately 2 mm, a width of approximately 100 mm, and a length of approximately 50 mm.

8. (original): The apparatus of claim 7, wherein gas flows through said channel at a rate of approximately 0.25 m<sup>3</sup>/sec.

9. (original): Apparatus for fiber length measurements from a tapered beard attached to a fiber sampler, comprising a scanner intended for scanning documents positioned with reference to the tapered beard for acquiring a two-dimensional image of the tapered beard.

10. (previously presented): The apparatus of claim 9, which further comprises a digital computer connected to an output of said scanner for storing two-dimensional image data and determining fiber amount as a function of one-dimensional distance x from the fiber sampler by averaging across the width of the tapered beard as imaged.

11. (currently amended): A method for image-based length measurement comprising:

acquiring a two-dimensional digital image of a tapered beard of fibers, the beard having a length;

employing a computer to analyze the digital image to determine fiber amount as a function of one-dimensional distance along the length of the tapered beard by averaging across the width of the tapered beard as imaged; and

analyzing the determined fiber amount as a function of distance to produce a fiber length distribution. ~~and~~  
~~outputting the fiber length distribution.~~

12. (canceled)

13. (canceled)

14. (canceled)

15. (canceled)

16. (canceled)

17. (previously presented): The apparatus of claim 2, wherein said optical imaging device provides spectrally-resolved data, and fiber amount as a function of one-dimensional distance  $x$  is determined based on data for a particular color.

18. (previously presented): The apparatus of claim 10, wherein said scanner provides spectrally-resolved data, and fiber amount as a function of one-dimensional distance  $x$  is determined based on data for a particular color.

19. (previously presented): The method of claim 11, which comprises acquiring spectrally-resolved image data, and employing the computer to determine fiber amount as a function of one-dimensional distance based on data for a particular color.